J. William Helton
UCSD

Changing noncommuting variables with free analytic functions

Abstract

The talk concerns inequalities for functions having matrix variables. The functions are typically (noncommutative) polynomials or rational functions. A focus of much attention are the inequalities corresponding to convexity.

Since systems problems seldom produce an LMI directly it is important to have a theory for changing variables to produce an LMI or a theory of convex hulls. While this is hopeless for classical polynomials in commuting variables, there is some chance of an informative theory for matrix variables. For noncommuting variables this produces a wide range of subsidiary problems which need to be solved. The talk will describe some of these and what is known about them.

Most of the work is done jointly with Meric Augat, Igor Klep and Scott A. McCullough who also will be speaking at IWOTA so our talks will be somewhat coordinated.

Talk time: 07/19/2016 2:30PM— 07/19/2016 2:50PM
Talk location: Cupples I Room 113

Special Session: State space methods in operator and function theory. Organized by J. Ball and S. ter Horst.